

In the Claims:

Please cancel claims 14 to 28 without prejudice, amend claim 30 and add the following claims 31 to 45:

Claims 1 to 28 (canceled).

29(previously presented). A radio station (1) comprising
at least two antennas (50,55) from which pre-equalized signals are propagated over respective radio channels (20,25) to an additional radio station (2);

a code generator (5) for widening data transmitted with the pre-equalized signals with a respective code, said code generator ascertaining said respective code according to a selected radio link; and

a modulator (4) including means for pre-equalization of radio signals to be transmitted to form the pre-equalized signals;

wherein said means for pre-equalization of said radio signals to be transmitted from said at least two antennas (50, 55) performs said pre-equalization according to all actually used codes and transmission properties of all actually used ones of said radio channels (20,25).

30(currently amended). The radio station as defined in claim 29, further comprising at least one channel estimator (11,12), and wherein said at least one channel estimator comprises ~~comprising~~ means for determining an estimate of

an impulse response of each of said radio channels (20,25) and said pre-equalization of said radio signals to be transmitted from said at least two antennas occurs according to said estimate of said impulse response for each of said radio channels.

31(new). A method for transmitting signals between a first radio station (1) and a second radio station (2), said second radio station having a plurality of antennas (60,65) and said first radio station (1) including a modulator (4) with pre-equalization means, said method comprising the steps of:

a) performing a pre-equalization of radio signals to be transmitted in said modulator (4) of said first radio station in order to form pre-equalized signals;

b) transmitting said pre-equalized signals from the first radio station (1) over each of a plurality of radio channels (20,25) to the second radio station (2);

c) receiving said pre-equalized signals transmitted over each of said radio channels (20,25) in the second radio station, said pre-equalized signals transmitted over respective channels being received in said second radio station (2) by corresponding antennas of the second radio station; and

d) determining an estimate of a total impulse response of all of said radio channels (20,25) in said first radio station (1);

wherein said pre-equalization of said radio signals is performed by said modulator (4) according to said estimate of said total impulse response determined in step d).

32(new). The method as defined in claim 31, wherein received signals received by said antennas (60,65) of said second radio station (2) are combined linearly and subsequently input to a demodulator for demodulation.

33(new). The method as defined in claim 32, further comprising transmitting respective reference signals from said antennas (60,65) of said second radio station (2) over said radio channels (20,25) to said first radio station (1) and wherein said estimate of said total impulse response is derived from superimposed reference signals received in said first radio station (1).

34(new). The method as defined in claim 33, wherein said respective reference signals are multiplied with corresponding coefficients depending on which of said radio channels (20,25) is employed in transmitting said reference signals and said superimposed reference signals received in said first radio station are multiplied with said corresponding coefficients of said radio channels employed for transmitting said reference signals.

35(new). The method as defined in claim 31, further comprising transmitting additional radio signals to said first radio station (1) from additional radio stations (3), and wherein data transmitted with said additional radio signals from said additional radio stations are widened with different codes and said pre-equalization is performed in said modulator (4) of said first radio station (1)

according to all of said different codes and transmission properties of all of said radio channels.

36(new). The method as defined in claim 35, wherein said transmission properties of said radio channels are determined from said data transmitted to the first radio station (1) from said additional radio stations (3) and from additional data transmitted to the first radio station (1) from the second radio station (2).

37(new). A radio station (2) comprising

at least two antennas (60,65) for receiving and transmitting radio signals transmitted over corresponding radio channels (20,25) from another radio station (1);

means for transmitting respective weighted reference signals to said another radio station (1) from said at least two antennas (60,65) over said corresponding radio channels (20,25), wherein said respective weighted reference signals are formed by multiplying respective reference signals by corresponding coefficients assigned to said at least two antennas, and so that said respective weighted reference signals are transmitted from corresponding antennas associated with said respective coefficients;

means for multiplying corresponding received signals from said at least two antennas with said respective coefficients (c_1 , c_2) to form weighted received signals;

means for adding said weighted received signals to form a resulting linear combination; and

means for inputting said resulting linear combination to a demodulator.

38(new). A radio station (1) comprising

a modulator (4) comprising means for pre-equalization of radio signals to be transmitted to a second radio station (2) so as to form pre-equalized signals;

means for transmitting said pre-equalized signals over each of a plurality of radio channels (20,25) to said second radio station (2), said second radio station having a plurality of antennas (60,65) corresponding to said plurality of said radio channels; and

means for performing an estimate of a total impulse response of said plurality of said radio channels (20,25) from respective reference signals received over said radio channels from said second radio station;

wherein said means for pre-equalization performs said pre-equalization according to said estimate of said total impulse response of said plurality of said radio channels.

39(new). A method for transmitting signals between a first radio station (1) and a second radio station (2), said first radio station comprising a modulator (4) with means for pre-equalization, said method comprising the steps of:

a) performing a pre-equalization of radio signals to be transmitted in said modulator (4) of said first radio station in order to form pre-equalized signals;

- b) transmitting said pre-equalized signals from the first radio station (1) over each of a plurality of radio channels (20, 25) to the second radio station (2);
 - c) receiving said pre-equalized signals transmitted over each of said radio channels (20, 25) in the second radio station;
 - d) transmitting other signals over additional channels from other radio stations (3) to the first radio station (1); and
 - e) widening data transmitted from different radio stations including the other radio stations with different codes;
- wherein said pre-equalization in said modulator (4) of said first radio station is performed according to all of said different codes and according to transmission properties of all of said radio channels and said additional channels.

40(new). The method as defined in claim 39, further comprising performing an estimate of an impulse response of said radio channels (20, 25) in said first radio station (1), and wherein said pre-equalized signals are propagated from plural antennas (50,55) of the first radio station (1) and transmitted over said plurality of said radio channels (20,25) to the second radio station (2), and said pre-equalization of said signals propagated from said plural antennas (50,55) is performed according to said estimate of said impulse response.

41(new). The method as defined in claim 40, wherein a respective reference signal is transmitted to said first radio station (1) from a corresponding antenna (60) of said second radio station (2) over said plurality of said radio channels

(20,25) and said estimate of said impulse response of said plurality of said radio channels (20,25) is derived from said respective reference signal transmitted over said radio channels (20,25) to said first radio station.

42(new). The method as defined in claim 39, further comprising performing an estimate of an impulse response of each of said radio channels (20, 25) in said first radio station (1), and wherein said pre-equalized signals propagated by the first radio station (1) are transmitted over said plurality of said radio channels (20,25) and received by corresponding antennas (60,65) of said second radio station (2), said pre-equalization of said signals propagated by said first radio station (1) is performed according to said estimate of said total impulse response, and received signals received by said corresponding antennas (60,65) of said second radio station (2) are combined linearly and subsequently input to a demodulator.

43(new). The method as defined in claim 42, wherein respective reference signals are transmitted to the first radio station (1) over said plurality of said radio channels (20,25) and said estimate of said total impulse response is derived from said respective reference signals in said first radio station (1).

44(new). The method as defined in claim 43, wherein said respective reference signals are multiplied by corresponding coefficients according to which of said radio channels is used for transmission of said respective reference signals and

wherein said received signals received by said corresponding antennas (60, 65) of said second radio station (2) are multiplied by said corresponding coefficients and then linearly combined with each other.

45(new). The method as defined in claim 39, wherein said transmission properties of said radio channels and said additional channels are ascertained from data transmissions of the second radio station (2) and the additional radio stations (2) to the first radio station.